

COMPLETE LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A communication method via a power line communication channel between a collecting unit and a plurality of control devices, each of which is associated with at least an electrical device, comprising the steps of:

exchanging messages between said collecting unit and said control devices, each of said messages containing at least:

a progressive message number;

an addressee identification number;

a portion of informative content and/or executable commands;

assigning a specific identification number to each control device, said messages being addressable selectively to a specific control device via said addressee identification number;

wherein when a control device receives a message containing an addressee identification number differing from its own identification number after a given delay interval said control device generates and transmits on said channel at least one echo of said message that is not addressed to a specific intermediate control device on said channel or a next control device along a specific message route, unless a reply to said message was received from the control device to which said message was addressed, and

wherein said control device compares said message with pre-established criteria and transmits said echo of said message upon determining that said message corresponds to said criteria, to prevent unlimited generations of echoes of a given message.

2. (Previously Presented) The method of claim 1, wherein the control device that generated an echo of the message received and addressed to a different control device, temporarily stores identifying information of said message and does not generate subsequent echoes of said message while the identifying information remains stored.

3. (Previously Presented) The method of claim 2, wherein each control device stores the identifying information of messages of which it has generated an echo in a temporary list containing identifying information of a predetermined maximum number of messages.

4-32. (Canceled).

33. (Currently Amended) A system comprising a collecting unit including at least a processor, a memory and a transmission and reception device, and a plurality of control devices, each of which comprises at least a processor, a memory and a transmission and reception device and is interfaced with at

least an electrical device, said collecting unit and said control devices being connected to one another via a power line communication channel,

wherein the collecting unit and the control devices are programmed to exchange messages between said collecting unit and said control devices, each message contains at least:

a progressive message number;

an addressee identification number;

a portion of information content and/or executable commands;

wherein each control device is assigned its own identification number, said messages being addressable selectively to a specific control device via said addressee identification number; and

wherein when a control device receives a message containing an addressee identification number differing from its own identification, after a given delay interval said control device generates and transmits on said channel at least one echo of said message that is not addressed to a specific intermediate control device on said channel or a next control device along a specific message route, unless a reply to said message has already been received from the control device to which said message was addressed, and

wherein said control device compares said message with pre-established criteria and transmits said echo of said message upon determining that said message corresponds to said criteria, to prevent unlimited generations of echoes of a given message.

34. (Previously Presented) The system of claim 33, wherein the control device that generated an echo of the message received and addressed to a different control device is programmed to temporarily store identifying information of said message and does not generate subsequent echoes of said message while the identifying information remains stored.

35. (Previously Presented) The system of claim 34, wherein each control device comprises a memory, and is programmed to store the identifying information of messages it has generated an echo of in a temporary list containing identifying information of a predetermined maximum number of messages.

36-63. (Canceled)

64. (Currently Amended) A control device for electrical devices comprising: a processor, a memory, a connection to a corresponding electrical device, and a device for transmission and reception on a power line communication channel for the reception and the transmission of information and/or commands to which an identification number is assigned,

said control device being programmed to receive and transmit messages via said communication channel, each of which contains at least

a progressive message number;

an addressee identification number;

a portion of informative content and/or executable commands;

and is programmed so that when it receives a message containing an addressee identification number differing from its own identification number, from said channel via its own transmission and reception device, it transmits at least an echo of the message received on said channel after a given delay interval, the echo not being addressed to a specific intermediate control device on said channel or a next control device along a specific message route, unless it receives on said channel a reply to said message, said delay interval specific to said control device so as to prevent overlapping of messages on said communication channel, and

said control device is programmed to compare said message with pre-established criteria and transmit said echo of said message upon determining that said message corresponds to said criteria, to prevent unlimited generations of echoes of a given message.

65. (Previously Presented) The control device of claim 64, further programmed to temporarily store identifying information of each message of which it generates an echo and not to generate subsequent echoes of said message while the identifying information remains stored.

66. (Previously Presented) The control device of claim 65, further programmed to store the identifying information of messages of which it generated an echo in a temporary list of identifying information relative to a maximum number of said messages.

67-84. (Canceled)

85. (Previously Presented) The method of claim 1, each of said messages further containing a counter, and further comprising:

wherein a control device receiving a message containing an addressee identification number differing from its own identification number compares a value associated with said counter to a pre-established value and transmits said message when said value is above said pre-established value.

86. (Previously Presented) The method of claim 85, wherein said control device receiving a message containing an addressee identification number differing from its own identification number decreases said value of said counter prior to transmitting said echo of said message.

87. (Previously Presented) The method of claim 86, wherein an initial value of said counter is equal to a total number of said plurality of control devices.

88. (Previously Presented) The method of claim 1, wherein each control device transmits said echo of the message received with its own specific delay.

89. (Previously Presented) The method of claim 88, wherein the delay with which each control device transmits the echo of the message received is determined as a function of the identification number assigned to said control device.

90. (Previously Presented) The method of claim 89, wherein said delay is equal to the duration of the message multiplied by the identification number of the respective control device that transmits the echo.

91. (Previously Presented) The method of claim 90, wherein said collector unit emits messages addressed to specific control devices with a temporal interval above a maximum delay with which a previous message can be regenerated via echo by all of said plurality of control devices.

92. (Previously Presented) The system of claim 33, wherein each of said messages further contains a counter, and

wherein each control device is programmed upon receiving a message containing an addressee identification number differing from its own identification to

compare a value associated with said counter to a pre-established value,

decrease said value of said counter when said counter value is above said pre-established value and subsequently transmit said message.

93. (Previously Presented) The system of claim 33, wherein each of said plurality of control devices is programmed to transmit said echo of the message received with its own specific delay determined as a function of the identification number assigned to said control device, and

wherein said collector unit is programmed to emit messages addressed to specific control devices with a temporal interval above a maximum delay with which a previous message can be regenerated via echo by all of said plurality of control devices.

94. (Previously Presented) The control device of claim 64, each of said messages further containing a counter, and

wherein said control device is programmed upon receiving a message containing an addressee identification number differing from its own identification to

compare a value associated with said counter to a pre-established value,

decrease said value of said counter when said counter value is above said pre-established value and

subsequently transmit said message.

95. (Previously Presented) The control device of claim 64, wherein said control device is programmed to transmit said echo of the message received with its own specific delay determined by multiplying said identification number associated with said control device by a duration of the message.